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ABSTRACT

If used carefully and with appropriate developmental expectations, primary source materials can assist children as they construct knowledge related to change and continuity. A study demonstrating this conclusion observed, videotaped, and photographed children at different stages of development as they played with specific primary source materials related to the theme "technology in the home." Children at the sensorimotor period played with washboards, tubs, and old clothes. Children at the preoperational level played with an old wringer, a copper boiler tub, and replications of a modern washer and dryer. Children at the concrete operational period studied photographs from 1900 to 1920 depicting familiar household chores. At each stage of development, different facts or evidence, conclusions or inferences, and generalizations emerged. Facts and evidence at the sensorimotor period included experiences with wet and dry, bumpy and smooth. Conclusions at this early level of development involved object identity and continuity. At the preoperational period, facts encompassed ideas about how machines worked and about physical characteristics of materials. Children concluded that clothes may be washed in different ways; their generalization stated that people washed clothes differently long ago. Facts at the concrete operational level included statements concerning the physical work required to iron, get water, sweep floors, and sew. Chldren at this level inferred that, although basic household tasks remained the same, completion of tasks in the past required more muscle power. A generalization within the capacity of children at the level of concrete operations would indicate that technology has changed the ways in which household chores are done. (RH)

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From material culture to photographs, from maps to newspapers, from manuscripts to city directories, from census records to art collections, primary source materials (materials contemporary with events being studied) continue to intrigue learners of all ages. Yet, what is the meaning of these materials for children at early stages of development? How can these materials help children understand change and continuity?

Using Primary Source Materials at Different Development Stages

Helen L. Carlson

To answer this question, it was necessary to observe children at various stages of development as they actually used specific primary source materials. Selected groups of children at different developmental stages--sensori-motor, pre-operational, and concrete operational--were videotaped and photographed as they interacted with various primary source materials related to the content theme "technology in the home."

Sensori-Motor Period

In scenario 1, children at the sensori-motor period played with washboards, tubs, and old clothes.

> Scenario 1. Four toddlers, sixteen to eighteen months of age played with soap suds and washtub, swishing clothes back and forth. They held the scrubbing and rubbed clothes. The teacher commented about the bumpy board, the rustling water. Carefully, the children selected clothespins for the line and hung dripping wet clothes.
> "Wet,"" said one of the children.
> "Yes," replied the teacher, "these are wet. The dry ones are over there."
> The children were proud of their whole line of washing as they viewed the results of their efforts.

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From the children's sensori-motor perspective, materials were of on time period--the present. Children learned that clothes could be wet or dry, that the washboard was rough, the water could have bubbles that burst. Learning outcomes could be similar if the primary source were of the present time rather

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than the past.

The fact that clothes could be wet or dry first introduced the young children to concepts of change and continuity. The clothes remained clothes, but they changed form, texture, moisture content, and configuration when placed in water and then changed again when hung on a line to dry.

Pre-operational Period

In scenario two, children at the pre-operational level played with an old wringer, a copper boiler tub, and modern replications of a washer and dryer.

> Scenario 2. Six pre-schoolers, three to four-and-one-half years of age, played with the wringer and washing tub, plus wool socks. The wringer was close to a dramatic play house-keeping center, in which there were models of a modern washing machine and dryer. The children noticed the copper tub, touched it, and commented about how cool if felt. They paid attention to the wood in the stand, the rubber in the wringers, and the metal in the handle.
>
> "Let's play 'washing clothes,'" said one child.
> "Here comes the sock," replied another child.
> "How are we going to get the soap out of the socks?" asked the teacher.
> "We'll have to wash, wring, rinse, wring, dry. That's lot's of work," said the teacher.
>
> Several children went to the dramatic play area and played with the models of the modern washer and dryer.
>
> "I'll put the clothes in the washer. Then we'll go shopping. We can do that because the clothes wash by themselves."
>
> With clean-up, the play period ended.

At this pre-operational period, materials could be old, from a long time ago. Children learn not only that clothes could be wet or dry, but that washing clothes was different in the past, different in the physical qualities of the equipment (wood, rubber, metal as opposed to plastic and steel) and in the operation of the equipment (Human power as opposed to electrical power).

At this pre-operational period, the child's sense of time is psychological and personal rather than standardized and quantitative. The sequence (wash, wring, rinse, wring, dry) is important in the child's construction of temporal schemas.

Symbolic play with realistic models also is significant. The children, through socio-dramatic play, incorporated compare and contrast between the old and new ways of washing clothes. This was done in a naturalistic play episode.

Continuity was present in this example in the process of "washing clothes." The need for washing clothes was necessary in the past and continues into the present. Change was evident in the different clothes washing processes.

Concrete Operational Period

In scenario three, children at the concrete operational period used observation skills to look at photographs depicting familiar household chores.

> Scenario 3. Six elementary children, seven-and-one half to eight years of age, looked at a series of photographs from 1900 to 1920. These photographs included scenes such as the following: ironing, doing dishes, getting water from the pump, sp ing, cooking with a wood stove, sweeping the floor, sewing h the treadle machine.
>
> The teacher announced to the children that they would be studying the way people did household jobs in the past. The teacher defined the past as the time when the children's grandparents were very young or when the children's grandparents were born. As they looked at the pictures, the children would notice the kinds of equipment used and try to determine construction materials; they would look at where the job was done and who was doing it; finally, they would attempt to find out sources of power for the machines shown in the pictures. The teacher asked them to think about how their home jobs were the same as those in the pictures, and how they were different.
>
> After one practice session as a total group, the children worked in dyads and examined each picture. They shared their ideas about their observations.

"The irons are on the stove. They must get really hot, I wonder if they ever get too hot. There are no dials on the irons," said one pair of children.

"Look, they didn't have vacuums for the rug. They're using the broom to clean the rug," said another child.

"I think there is a spinning wheel in my picture," stated another boy.

Children continued with comments about going outside to get water and using foot power to operate the sewing machine.

At the end of the lesson, the teacher wrote the children's conclusions on the board--when people of long ago did household chores, they used muscle power instead of electricity; women did most of the work inside the house, it seemed harder being a homemaker in the early 1900's.

When children can sequence months of the years, days of the week, and have acquired initial "time telling" abilities, it is a signal that quantitative time skills are being constructed. Children could then begin to comprehend the past, particularly when it is related to their personal lives, i.e., their grandparents.

Through comparing present and past, children in this example used their emerging classification skills to delineate changes in the carrying out of household chores. The similarity in the nature of tasks needed to maintain life made the children aware of continuity.

Thus, in each of the stages, understanding of change and continuity was enhanced through the use of primary source materials.

Comparisons of Facts, Conclusions and Generalizations

At each stage of development, different facts or evidence, conclusions or inferences, and generalizations emerge. In these examples these content learning outcomes related to the overall theme: there has been a change in the

completion of never-ending household chores as technology has changed and become more widely available.

As Chart I indicates, facts and evidence at the sensori-motor period include experiences with wet and dry bumpy and smooth. An emerging awareness that clothes are still clothes (object identity and continuity) even when they change configuration is a conclusion at this early level of development.

At the pre-operational period, facts gleaned from the experience encompassed realizations that old washer squeezed clothes when you moved the handle, that the materials had certain physical characteristics. A conclusion was that there are different ways to wash clothes, while a generalization stated that people washed differently long ago.

During the concrete-operational period, facts included statements such as these: people had to heat heavy irons on the stove and push them over the clothes, water had to be obtained from outside with a handpump, rugs were swept with a broom rather than vacuumed, sewing machines had to be operated with the feet. Although basic household tasks remain the same, it took muscle power to complete these chores in the past--this was an example of an inference. A generalization could be--technology has changed the ways in which we complete household chores.

For purposes of comparison, the formal operational period could be considered for a moment. After analysis of census record and reminiscenses, broader generalizations could emerge. One generalization might describe the change in societal expectations. Even though technology has made work easier (in terms of human muscle power), people spend as much time completing household jobs today as in the past. Cleanliness standards are much higher today than in the early 1900's.

At each stage of development, then, it is important to begin with facts or evidence, move to conclusions or inferences, and then as developmental level allows, to broaden generalizations about the context of human interaction in which specific examples are embedded.

A Framework for the Use of Primary Source Materials

A framework for the use of primary source materials has three dimensions: 1) primary source type, 2) processes of learning, 3) content outcomes.

Source materials move from real to abstract and could be summarized as depicted on Chart II: material culture (artifacts), photographs and paintings, maps, catalogs, newspapers, city directories and census records, and manuscripts (diaries, letters, reminiscenses, records of oral history).

The process dimension of learning also contains three areas. Real experiences, in an historical sense, incorporates using and studying artifacts and material culture, observing actions in photographs, as well as compiling data from a census record. Symbolic representation of real experience could involved role playing, or making a model or pictorial record of real experience. Logical reasoning next comes in to play as analysis (comparison/contrast), synthesis, and evaluation skills emerge. Conclusions based on early logical reasoning may be written by the teacher. As the pupils grow older, these ideas may be written by the learners themselves.

The content dimensions of the framework focuses on three areas. Facts include specifics of a content area, specifics such as the physical properties of an artifact or the number of servants per household found in a census record. Inferences are conclusions or summaries of facts and what they mean. An artifact might be discussed in terms of function. Descriptions of the roles of

servants in a household might be inferences drawn from census records. Generalizations move to the broader context.

Yet, whether these facts, generalizations, and conclusions relate to areas such as technology, population, or lifestyle, historical understandings develop. These understandings include change, progress, continuity, causality, and multiple causality.

Summary

The focus of this article has been on the real and representational experiences with material culture and photographs, which are most appropriate for young children. Content has concentrated on facts and conclusions rather than the broad generalizations which might emerge from older thinkers.

Children have learned about change and continuity in the sensori-motor washing experience. They have understood change and continuity as pre-operational children through real experiences and role-playing. Finally, as concrete operational thinkers, they have studied photographs and dictated facts and conclusions about household chores.

If used carefully and with appropriate developmental expectations, primary source materials can assist children as they construct knowledge related to change and continuity.

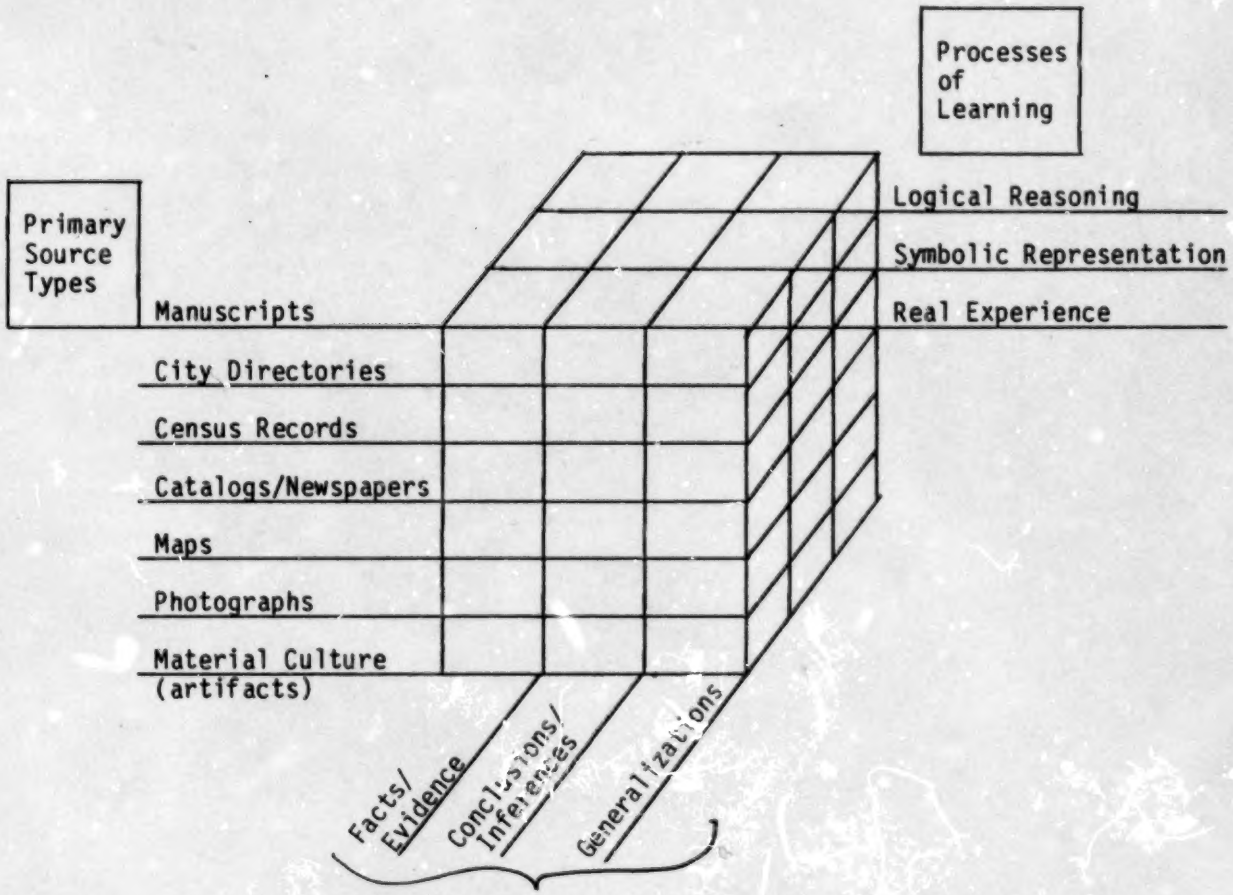
CHART I

SAMPLE OF LEARNING OUTCOMES

STAGE	FACTS/EVIDENCE	CONCLUSIONS/INFERENCES	GENERALIZATIONS
Sensori-Motor	Experiences with wet/dry, bumpy/smooth, etc.	Object identity (clothes remain clothes when they change configuration, etc.)	
Pre-operational	Old washers squeeze clothes when you move the handle. Old washers, had wood, rubber, metal. You throw clothes into new washers.	There is a sequence to washing clothes.	There are different ways to wash clothes. Past is different from present.
Concrete-operational	Irons had to be heated on stove and moved across clothes. They were heavy. Sewing machines moved with foot power, etc.	Household chores needed more "muscle power" in the past.	Technology has changed the way we complete household jobs.
Formal-operational	Census - 60% of the middle class households had servants. Diaries-houses were cleaned thoroughly once a year. Parts of homes were used once a week or less. Data Charts.	People spend time on household chores today; they did this in the past.	Due to higher cleanliness expectations, technology has not decreased the time spent in household chores.

CHART II

FRAMEWORK FOR USING PRIMARY SOURCE MATERIALS



CONTENT LEARNING OUTCOMES

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